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COLLEGE PARK, MD.

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ANALYSIS OF

Commercial Feeding Stuffs Sold in Maryland

BY THE CHEMICAL DEPARTMENT OF

THE MARYLAND AGRICULTURAL COLLEGE.

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The table commencing on page 4 contains the results of analyses of feeding stuffs made in this laboratory since the publication of Quarterly No. 24. The examinations have been, for the most part, limited to samples of "concentrated commercial feeding stuff" as defined in the laws which will be found on pages 10 and 11.

The analyses are arranged in the order of "concentration," or protein content, with a few exceptions in order to bring together feeds of the same class or brand. The analyses are stated as percentages, or pounds per hundred.

Cotton seed meal, for feeding, should be of a light canary color, with sweet, nutty odor. The presence of hulls makes it dark in color and adds lint. The best meal is nearly free from lint or short cotton. Fermentation and heating, before or after the seed is crushed and pressed, renders the meal dark in color and of bad odor and flavor. Such meal is only fit to be used as fertilizer.

When added to dairy rations only two to four pounds of cotton seed meal should be used per cow each day, the latter amount only after the animals have become accustomed to it.

Oil meal, linseed meal or flaxseed meal, is made from flaxseed after crushing it and pressing out as much of the oil as possible. It still contains about 7% of oil. This is the "old process" meal, and is to be preferred to the "new process," where nearly all of this oil is removed by a suitable solvent, as benzine or carbon bisulfid. Two samples of linseed meal were found from which the oil had not been pressed. It is unusual for such meal to be used for feeding purposes, and, though the meal sampled was being used for feed, it probably had been originally intended for other purposes.

Oil meal, being somewhat less concentrated (containing less protein and fat) than cotton seed meal, may be used more freely.

Gluten meal is a by-product from the manufacture of starch and glucose from corn.

The various "oat feeds" are composed largely, and sometimes entirely, of oat bran and middlings, the by-product from the preparation of oat meal and "rolled oats" for human food.

Concentrated feeds will vary some in composition, but the quality will be indicated by the percentage of protein and fat. The following abbreviated list contains the principal concentrated foods, as well as some of the more common foods, for comparison. The percentages given are the approximate averages to the nearest unit. Any decided shortage below the figures here given denotes poor quality or adulteration:

Feed.	Protein. Per Cent.	Fat. Per Cent.
Cotton Seed Meal	41	8
Linseed, or Flaxseed Meal	33	*7
	35	†2
Gluten Meal	33	2
Gluten Feed	25	3
Germ Oil Meal	23	10
Malt Sprouts	23	2
Dried Brewers' Grains	20	3
Wheat Middlings	16	4
Wheat Bran	15	4
Wheat	12	2
Oats	11½	4
Corn Meal	10	4
Cow Peas	21	1
Alfalfa Hay	14	2
Red Clover Hay	12	3
Timothy Hay	6	2½
Oat Straw	4	2
Cotton Seed Hulls	4	2
Wheat Straw	3	1
Corn Fodder (Stover)	3½	1

*Old process. †New process.

The law requires that all concentrated feeds be branded with name of manufacturer, name of feed and the guaranteed analyses of protein and fat. Purchasers should insist on the guarantee.

This department will be glad to receive suggestions and correspond with consumers of feed and dealers in regard to suspected adulteration, and will make investigations of the same so far as we possibly can.

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ANALYSES OF FEEDING STUFFS.

No.	Name of Manufacturer or Agent.	Name of Food Stuff.	Place of Sampling.	Protein.		Fat or Ether Extract.	
				Found.	Guaranteed.	Found.	Guaranteed.
12902	Armour Fertilizer Works, Baltimore, Md.	Fine Blood Meal.....	Barnesville.....	84.85	.....	.34	.....
12876	The David E. Foutz Co., Baltimore, Md.	Proteinous Stock Food No. 1.	Baltimore.....	72.20	.....	4.73	.....
12844	Darling & Co., Chicago, Ill.....	Pure Ground Beef Scrap..	New Windsor	63.36	55.00	13.35	10.00
12912	Swift & Co., Chicago, Ill.....	Swift's Beef Scrap.....	Hagerstown.....	59.14	60.00	9.04	8.00
12908	Geo. L. Harding, Binghamton, N. Y.	H. G. Beef Scrap	Hagerstown.....	40.98	42.00	31.55	30.00
12878	" " "	Celebrated Meat Meal....	.....	39.93	55.00	14.90	10.00
12910	" " "	Celebrated Meat Meal....	Hagerstown.....	38.87	55.00	13.35	10.00
12850	Baugh & Sons Co., Baltimore, Md.	Meat Meal for Poultry ...	Baltimore	57.04	57.00	17.66	16.00
12942	" " "	Meat Meal for Poultry ...	Ridgely	54.76	57.00	16.34	16.00
12843	The American Cotton Oil Co., New York, N. Y.	Prime Cotton Seed Meal..	Frizellburg.....	43.61	43.00	9.01	9.00
12915	" " "	Prime Cotton Seed Meal..	Hagerstown.....	42.12	41.00	8.78	9.00
12889	Chapin & Co., St. Louis, Mo...	Cotton Seed Meal, Green Diamond Brand.	Westminster	43.01	43.00	8.95	9.00
12933	" " "	Cotton Seed Meal, Green Diamond Brand.	Fallston.....	41.07	43.00	8.35	9.00

12854	R. W. Biggs & Co., Memphis, Tenn.	Cotton Seed Meal, Canary Brand.	Queenstown.....	42.30	43.00	9.01	9.00
12888	W. A. Kaiser & Co., Memphis, Tenn.	Cotton Seed Meal, Eagle Brand.	Westminster	41.94	43.00	8.85	9.00
12937	W. G. Bishop & Co., Baltimore, Md.	Prime Cotton Seed Meal..	New Windsor	40.10	43.00	10.61	9.00
12924	W. P. Battle & Co., Memphis, Tenn.	Cotton Seed Meal, Battle Brand.	Rising Sun.....	40.02	43.00	12.03	9.00
12874	Sledge & Wells Co., Memphis, Tenn.	Cotton Seed Meal	Baltimore.....	40.02	43.00	9.58	9.00
12881	F. W. Brode & Co., Memphis, Tenn.	Cotton Seed Meal, Owl Brand.	Baltimore.....	39.05	43.00	8.80	9.00
12935	Daniel Rider, Baltimore, Md...	Cotton Seed Meal, Elk Brand.	Chestertown	38.44	40.00	8.63	8.50
12868	Georgia Cotton Oil Co.....	Cotton Seed Meal	Baltimore.....	37.60	40.37*	10.75	.....
12895	Oliver Refining Co., Portsmouth, Va.	Prime Cotton Seed Meal..	Frederick	36.15	43.00	8.23	9.00
12941	H. P. Pillsbury, Agt.,† Washington, D. C.	Cotton Seed Meal	Hyattsville.....	34.66	.....	8.95	.....
12846	The American Linseed Co., New York, N. Y.	Old Process Oil Meal.....	Linwood.....	35.70	32.00	7.20	5.00
12872	Hunter Bros., St. Louis, Mo...	Linseed Oil Meal.....	Baltimore.....	35.10	34.00	8.04	6.00
12852	Wright & Hills Linseed Oil Co., Chicago, Ill.	Old Process Linseed Oil Meal.	Masseys.....	34.92	36.00	6.50	6.00
12857	W. G. Bishop & Co., Baltimore, Md.	Old Process Oil Meal.....	Baltimore.....	33.78	.....	7.85	.....
12891	Midland Linseed Co., Minneapolis, Minn.	Old Process Ground Linseed Cake.	Westminster	32.38	30.00	6.97	5.00
12845	J. Wm. Ament & Co., Baltimore, Md.	Old Virginia Process Oil Meal.	New Windsor	32.12	31.00	8.65	8.00
12867	Agent, S. Diggs & Sons, Baltimore, Md.	Flaxseed Meal	Baltimore.....	31.90	.....	7.28	.....
12900	Thompson & Co., Allegheny, Pa.	Oil Meal as Stock Feed...	Woodsboro.	31.41	32.00	8.63	5.50
12923	Metzgar Seed and Oil Co., Toledo, O.	Old Process Oil Cake Meal.	Rising Sun.....	31.41	.....	7.35	.....

* Guaranteed as "Nitrogen 6.18%," which equals 40.37% Protein. † Oliver Refining Co., Portsmouth. Va.

ANALYSES OF FEEDING STUFFS.

No.	Name of Manufacturer or Agent.	Name of Food Stuff.	Place of Sampling.	Protein.		Fat or Ether Extract.	
				Found.	Guaranteed.	Found.	Guaranteed.
12918	Albert Dickinson Co., Chicago, Ill.	Flax Seed Meal, Globe Brand.	Hagerstown.....	23.25	.....	37.25	.....
12906	Mann Bros. Co., Buffalo, N. Y.	Flax Seed Meal.....	Hagerstown.....	22.73	.....	40.00	.. ..
12917	J. W. Myers & Co., Hagerstown, Md.	Flax Seed Meal..... ...	Hagerstown.....	21.76	.....	33.38	.. ..
12909	Geo. L. Harding, Binghamton, N. Y.	Granulated Milk.....	Hagerstown.....	35.63	43.00	11.70	15.00
12926	Chapin & Co , Philadelphia, Pa.	Ajax Flakes.....	Colora.....	30.45	33.00	13.71	12.00
12890	The Glucose Sugar Refining Co., Chicago, Ill.	Chicago Gluten Meal.....	Westminster.....	32.64	38.00	3.92	3.00
12842	" " "	Buffalo Gluten Meal.....	Frizellburg.....	26.31	28.00	6.15	3.00
12925	" " "	Buffalo Gluten Feed.....	Colora.....	24.04	27.00	3.41	3.00
12934	Warner & Co., Waukegan, Ill..	Warners Gluten Feed....	Chestertown.....	24.39	.....	4.60	.....
12927	Douglas & Co., Cedar Rapids, Iowa.	Gluten Feed.....	Colora.....	23.43	26.50	5.48	3.30
12873	C. S. Schermerhorn & Son, Baltimore, Md.	Dried Malt Sprouts	Baltimore	26.25	.....	2.10	.....
12938	The American Malting Co., Hamilton, Ohio.	Malt Sprouts.....	Hyattsville.....	25.45	.....	2.70	.....
12841	The Glucose Sugar Refining Co., Chicago, Ill.	Corn Oil Cake Meal	Frizellburg.....	23.85	24.00	5.88	10.00

12896	The Glucose Sugar Refining Co., Chicago, Ill.	Corn Oil Cake Meal	Middletown	21.32	24.00	8.88	10.00
12905*	United Breeders Co. of America, Chicago, Ill.	United Breeders Horse Feed.	Hagerstown	21.94	.....	7.85	.....
12940	Western Grain Products Co. Milwaukee, Wis.	Hammond Dairy Feed	Hyattsville	18.64	17.00	5.10	3.00
12921	Lewis Leonhardt & Co., Knoxville, Tenn.	Saccharine Dairy Feed	Gaithersburg	17.16	17.00	8.00	4.00
12919	" " "	Saccharine Dairy Feed	Lay Hill	15.53	17.00	5.60	4.00
12922	" " "	Saccharine Dairy Feed	Boyds	14.39	17.00	6.45	4.00
12903	" " "	Saccharine Dairy Feed	Frederick	10.88	17.00	4.03	4.00
12893	" " "	Saccharine Dairy Feed	Barnesville	9.74	17.00	2.38	4.00
12892	The American Cereal Co., Chicago, Ill.	Quaker Dairy Feed	Taneytown	13.60	14.00	4.20	3.50
12916	" " "	American Poultry Food	Hagerstown	13.95	14.00	6.07	4.50
12930	Cyphers Incubator Co., Buffalo, N. Y.	Laying Food	Baltimore	15.97	15.26	2.60	3.50
12928	" " "	Forcing Food	Baltimore	12.37	12.77	4.26	3.40
12920	" " "	Chick Food	Baltimore	11.71	10.54	3.93	3.27
12929	" " "	Scratching Food	Baltimore	11.16	11.40	2.93	3.77
12911	Geo. L. Harding, Binghamton, N. Y.	Egg Builder Rations	Hagerstown	11.14	12.00	3.73	4.00
12907	Geo. L. Harding, Binghamton, N. Y.	Unexcelled Baby Chick Food.	Hagerstown	10.35	13.00	3.55	4.00
12943	The Ashland Stock Food Co., Ashland, O.	Ashland Poultry Food	Ridgely	8.34	.....	1.65	.....
12848	Royal Milling Co	Bran, "Ben Hur"	Union Bridge	15.72	.....	4.15	.....
12939	G. W. Cissel Co., Washington, D. C.	Bran	Hyattsville	15.53	.....	3.80	.....

*Manufacturer clai ns this to be a medicine, not food.

ANALYSES OF FEEDING STUFFS.

No.	Name of Manufacturer or Agent.	Name of Food Stuff.	Place of Sampling.	Protein.		Fat or Ether Extract.	
				Found.	Guaranteed.	Found.	Guaranteed.
12859	Washburn & Crosby Co., Indianapolis, Ind.	Bran	New Windsor	15.05	.....	4.64	.....
12885	Listman Mill Co., LaCrosse, Wis.	Fancy Bran, "Elmco"	Baltimore	14.22	.....	4.05	.....
12880	The American Cereal Co., Chicago, Ill.	Bran	Baltimore	13.95	.....	4.00	.....
12913*	International Stock Food Co., Minneapolis, Minn.	International Stock Food	Hagerstown	14.48	.....	4.35	.....
12931	The Ashland Stock Food Co., Ashland, O.	Ashland Stock Food	Berlin	12.37	.....	1.90	.....
12936	The Blomo Manufacturing Co., New York, N. Y.	Blomo Feed	Baltimore	13.43	15.00	1.95	1.19
12871	The H.-O. Co., Buffalo, N. Y.	H.-O. Horse Feed	Baltimore	12.64	12.00	5.08	4.50
12884	The H.-O. Co., Buffalo, N. Y.	H.-O. Horse Feed	Baltimore	11.67	12.00	4.28	4.50
12853	The Buffalo Cereal Co., Buffalo, N. Y.	Horse Feed	Queenstown	11.23	12.00	4.40	4.50
12887	Richard C. Wells, Baltimore, Md.	Store Feed, Corn, Oats and Bran.	Baltimore	10.62	.....	4.00	.....
12886	J. A. Loane & Co., Baltimore, Md.	Corn Oats and Bran	Baltimore	9.48	.....	3.48	.....
12901	The American Cereal Co., Chicago, Ill.	Schumaker's Stock Food	Woodsboro	10.53	13.00	4.30	5.00
12914	" " "	Schumaker's Stock Food	Hagerstown	11.41	13.00	4.05	5.00

12882	The Cover Supply Co., Baltimore, Md.	C. S. C. Feed	Baltimore	10.13	.....	5.20	.....
12847	F. L. Kiddy & Co., Paris, Ill...	Hominy Feed	Union Bridge	10.53	11.00	8.00	8.05
12860	The American Cereal Co., Chicago, Ill.	Hominy Feed	Union Bridge	10.35	11.00	6.23	8.00
12865	W. G. Bishop & Co., Baltimore, Md.	King Corn and Oat Feed..	Baltimore	9.56	8.00	3.75	4.00
12883	The Great Western Cereal Co., Chicago, Ill.	Boss Corn and Oat Feed..	Baltimore	9.17	9.00	5.44	4.00
12870	" " "	Boss Corn and Oat Feed..	Baltimore	8.78	9.00	4.68	4.00
12898	The American Cereal Co., Chicago, Ill.	Victor Corn and Oat Feed	Monrovia	8.25	9.00	4.61	4.00
12855	" " "	Victor Corn and Oat Feed	Bel Air	8.16	9.00	3.00	4.00
12894	The Oliver Refining Co., Portsmouth, Va.	Cotton Seed Feed	Frederick	9.48	10.00	1.73	3.00
12899	The Alma Sugar Co., Alma, Mich.	Dried Molasses Beet Pulp	Frederick	8.95	.....	.68	.....
12879	The Bay City Michigan Sugar Co., Bay City, Mich.	Dried Sugar Beet Pulp...	Gaithersburg	8.51	.....	.70	.....
12904	The Great Western Cereal Co., Chicago, Ill.	Friends Oat Feed	Hagerstown	7.20	8.00	2.40	3.00
12897	" " "	Royal Oat Feed	Emmittsburg	6.67	7.60	2.81	2.80
12849	" " "	Royal Oat Feed	Double Pipe Creek..	6.05	7.60	1.70	2.80
12863	The American Cereal Co., Chicago, Ill.	Vim Oat Feed	Baltimore	5.44	7.50	2.28	2.75
12932	Dickey Bros., Agents, Washington, D. C.	Ground Oats.†	Hyattsville	6.05	.....	2.05	.....

*Manufacturer claims that this is medicine, not food.

†This is not ground oats but almost, if not all, is oat bran and middlings.

FEED STUFF LAW OF MARYLAND. (Approved, April 5, 1900.)

Section 1. Be it enacted by the General Assembly of Maryland, That the following new Sections be added to Article 48 of the Code of Public General Laws, title "Inspections," under the new sub-title, "Feed Stuffs," to follow Section 83, and to be known as Sections 84, 85, 86, 87, 88, 89, 90, 91 and 92, and to read as follows:

84. Every manufacturer, company or person who shall sell, offer or expose for sale or for distribution in this State any concentrated commercial feeding stuff as defined in the following section of this sub-title, used for feeding farm live stock and poultry, shall affix to every package of such feeding stuff, in a conspicuous place, on the outside thereof, a plainly printed statement, clearly and truly certifying the number of net pounds in the package sold or offered for sale, the name or trade-mark under which the article is sold, the name of the manufacturer or shipper, the place of manufacture, the place of business, the source of the food principles, and a chemical analysis stating the percentage of crude protein, allowing one per cent. of nitrogen to equal six and one-fourth of protein, and of crude fat it contains, both constituents to be determined by the method adopted, at the time, by the Association of Official Agricultural Chemists.

85. The term concentrated commercial feeding stuff, as here used, shall not include hays and straws, the whole seeds nor the unmixed meals made directly from the entire grains of wheat, rye, barley, oats, Indian corn, buckwheat and broom corn. Neither shall it include wheat, rye and buckwheat brans or middlings, not mixed with other substance, but sold separately, as distinct articles of commerce, nor pure grain ground together. The agent of the State hereinafter authorized to make those inspections, is fully empowered to take samples of these excepted articles when found, and, if upon analysis, they prove to be adulterated, the vender shall be in all respects subject to the penalties hereinafter set forth for the adulteration of concentrated commercial feeding stuff.

86. The term concentrated commercial feeding stuff, as here used, shall include linseed meals, cotton-seed meals, cotton-seed hulls, pea meals, cocoanut meals, gluten feeds, maize feeds, starch feeds, sugar feeds, dried brewer's grains, malt sprouts, hominy feeds, cereline feeds, rice meals, oat feeds, corn and oat chops, ground beef, fish or animal meals, mixed feeds, all patented or trade-marked foods and all other materials of similar nature not included within the preceding Section of this sub-title.

87. Before any manufacturer, company or person shall sell, offer or expose for sale in this State any concentrated commercial feeding stuff, as defined in the preceding Section of this sub-title, he or they shall for each and every feeding stuff bearing a distinguishing name or trade-mark, file with the State Chemist of the Maryland Agricultural College, a certified copy of the statement named in Section 84 of this sub-title; said certified copy to be accompanied, when the State Chemist shall so request, by a sealed package containing at least one pound of the feeding stuff to be sold or offered for sale, and the company or person furnishing said sample shall thereupon make affidavit that said samples correspond within reason-

able limits to the feeding stuff which it represents in the percentage of protein and fat which it contains.

88. Before any concentrated commercial feeding stuff, as defined in Section eighty-six of this Act is sold, offered or exposed for sale in this State, the manufacturer, importer, agent or seller thereof shall pay to the Treasurer of the Maryland Agricultural College an inspection fee of twenty dollars for each brand or kind of concentrated commercial feeding stuff contemplated to be sold, and shall receive therefor from said treasurer a license to sell such brand of concentrated commercial feeding stuff until the first day of July next following; provided that when any manufacturer, importer or dealer shall have paid the inspection fee as herein provided, it shall not be necessary for any other person, as his agent or representative, to pay said fee.

89. Any manufacturer, importer or person who shall sell, offer or expose for sale or for distribution in this State any concentrated commercial feeding stuff, as defined in Section 86 of this Act without complying with the requirements of the preceding sections of this sub-title, or any feeding stuff which contains substantially a smaller percentage of constituents, than are certified to be contained shall, on conviction in a court of competent jurisdiction, be fined not more than one hundred dollars for the first offense, and not more than two hundred dollars for each subsequent offense.

90. The State Chemist of the Maryland Agricultural College shall annually analyze, or cause to be analyzed, at least one sample (to be taken in the manner hereinafter prescribed) of every concentrated feeding stuff sold or offered for sale under the provisions of this sub-title; said State Chemist is hereby authorized and directed in person, or by deputy, to take a sample, not exceeding two pounds in weight, for said analysis, from any lot or package of concentrated commercial feeding stuff, which may be in the possession of any manufacturer, importer, agent or dealer, or in *transitu* in this State. The result of the analysis of the sample or samples so procured, together with such additional information as circumstances advise, shall be published in reports or bulletins from time to time.

91. Any person who shall obstruct the State Chemist or his deputy when in the discharge of his duty, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine of not less than one hundred ($100) dollars, or more than five hundred ($500) dollars, or by imprisonment for not less than one month or more than six months, or by both such fine and imprisonment.

92. Whenever the State Chemist becomes cognizant of the violation of any of the provisions of this sub-title he shall report such violation to the State's Attorney having jurisdiction, who shall prosecute the party or parties thus reported, but it shall be the duty of said State Chemist to notify the manufacturer, importer or dealer in writing, before reporting same to State's Attorney, and give him not less than thirty days thereafter in which to comply with the requirements of this sub-title, but there shall be no prosecution in relation to the quality of any concentrated commercial feeding stuff if the same shall be found substantially equivalent to the certified statement named in Section 87 of this sub-title.

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A Chemist,
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